

Amendments to the Specification

The paragraph starting at page 2, line 22 and ending at page 3, line 9 has been amended as follows.

FIG. 1 is a diagram modeling a principle of signal detection in an encoder. In the encoder, light emitted from an LED 101 is detected through a code wheel 102 by a detector 103, which consequently generates a signal. The code wheel 102 is patterned with slit segments 104 that ~~transmits~~ transmit light from an LED 101 and segments 105 that do not transmit light alternating at predetermined intervals. The detector 103 contains photodiodes 106, 107, 108, and 109 placed at predetermined intervals, converts the light detected by the photodiodes 106, 107, 108, and 109 into respective electrical signals A (110), *A (111), B (112), and *B (113), and outputs them. Then, the electrical signals 110, 111, 112, and 113 are output as differential outputs Channel A (116) and Channel B (117) by comparators 114 and 115.

The paragraph starting at page 4, line 10 and ending at line 17 has been amended as follows.

When detecting positional information or speed information as control information about DC motors from an encoder signal, a single-edge sampling method is used to obtain more accurate information, where the single-edge sampling method consists

in of counting the period from a rise to the next rise of the encoder output signal using cycle information for which high precision is ensured.

The paragraph starting at page 6, line 11 and ending at line 13 has been amended as follows.

To achieve the above objects, a motor control ~~apparatus~~, apparatus and recording apparatus according to the present invention ~~preferably~~ preferably have the following configurations.

The paragraph starting at page 10, line 16 and ending at line 18 has been amended as follows.

In the following description of embodiments, a printer will be taken as an example of a recording apparatus which ~~employ~~ employs an ink jet recording method.

The paragraph starting at page 10, line 19 and ending at line 26 has been amended as follows.

The term "record" (or "print") herein not only means the act of forming meaningful information such as characters and graphics, but also refers ~~widely~~ broadly to the act of forming images, patterns, etc. on a recording medium or processing a medium

regardless of whether they are meaningful or meaningless and irrespective of whether they are tangible enough to be perceived by the human eye.

The paragraph starting at page 11, line 1 and ending at line 5 has been amended as follows.

Also, the term "recording media" not only refers to paper used on typical recording apparatus, but also refers ~~widely~~ broadly to cloth, plastic films, metal ~~plate~~ plates, glass, ceramics, wood, leather, and other materials which accept ink.

The paragraph starting at page 11, line 15 and ending at line 26 has been amended as follows.

FIG. 12 is an external perspective view outlining a configuration of a printer IJRA which is a representative preferred embodiment of the present invention. In FIG. 12, a carriage HC moves to and ~~from~~ fro along arrows a and b, being supported by a guide rail 5003 and being engaged via a pin (not shown) with a spiral groove ~~5004~~ 5005 of a lead screw ~~5005~~ 5004 which rotates via transmission gears 5009 to 5011 in synchronization with forward and reverse rotations of a drive motor 5013. Also, the carriage HC carries an integral-type ink jet cartridge IJC which incorporates a recording head IJH and ink tank IT.

The paragraph starting at page 12, line 24 and ending at page 13, line 2 has been amended as follows.

The capping, cleaning, and suction recovery described above are effected by the lead screw ~~5005~~ 5004 to ~~do~~ effect desired processing at appropriate positions when the carriage approaches its home position. However, any other method may be used as long as desired operations are performed with known timing.

The paragraph starting at page 20, line 14 and ending at line 21 has been amended as follows.

The PID processor 701 is supplied with the difference between the speed command profile and speed information and calculates feature values (e.g., energy needed to drive the DC motor) to be given to the DC motor at that time using known PID operations. The results of calculation ~~is~~ are converted into a current value and inputted in the DC motor to drive the motor. Subsequently, this closed loop implements speed control.

The paragraph starting at page 23, line 24 and ending at line 27 has been amended as follows.

Values corresponding to double-edge encoder slits in each phase are stored in `spd[sampleCounter][phaseCounter]` as edge-to-edge speed ~~information~~ information.